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ABSTRACT

This essay provides a policy analysis and literature review of selected issues in teacher quality and selection. The first section discusses developments in: (1) teacher quality; (2) quality and selection of minority group teachers; (3) the validity of the National Teacher Examination (NTE); (4) state certification; (5) local eligibility requirements; (6) competency-based teacher education and certification; (7) competency testing; and (8) local efforts to reform teacher selection criteria. In the second section of the essay, studies that pertain to the relationships among teacher presage variables and desirable student outcomes are discussed. Teacher presage variables are defined as characteristics that teachers possess before they enter the classroom, including NTE scores, college grades, years of experience and certification, race, and personality traits. A conclusion summarizes findings in these areas. A list of 75 references is appended. (FG)

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THE SCHOOL OF EDUCATION

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A Review of the Literature

by

James J. Shields, Jr. and Richard Daniele

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This section is divided into two parts. The first deals with a policy analysis of the public controversy over the academic competence of teachers, government efforts to mandate more equality in the hiring of minority teachers and the problem of finding appropriate job-related instruments for screening teacher applicants. This is accompanied by a description of state certification and local eligibility requirements and an analysis of recent trends on the cutting edge of educational reform. Particular attention is focused on the state competency testing movement for teacher certification.

The second part is a review of research studies relevant to the teacher selection process on the role of presage, process and product variables in predicting teacher effectiveness. Specifically, such presage variables as NTE scores, college grades, certification and years of experiences, race and personality factors, are discussed in terms of their validity in predicting changes in student achievement and behavior and evaluations of teacher performance.

The sources for the review were secured through a computer search, conducted by the New York State Library, of literature

*This section, with some modifications, will appear in the Encyclopedia of Educational Research, 5th ed., 1982.

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on teacher selection in ERIC and Psychological Abstracts. A second and more intensive search of ERIC, under the sponsorship of the American Association of Colleges of Teacher Education, provided more material, in particular on the National Teachers Examination (NTE). Also, because the last ten years have been a period of historic involvement by the states and the federal government in teacher selection issues, newspapers such as the New York Times and government and educational association reports were explored.

Policy Analysis

The Quality Issue

Charges have been made nationally that the quality of beginning teachers in terms of academic competence is declining. For instance, in New Mexico it was reported that none of the state's 136 bilingual teachers could pass a fourth-grade-level Spanish examination (Crewdson, 1979). The Dallas Independent School District, the nation's eighth largest urban school district, disclosed that more than half of its 535 new teachers in 1976-1977 had failed a competency test that is used to test the intelligence of those thirteen years and older. A copy of test scores obtained by the Dallas Times Herald showed that administrators who took the test did even worse than a sample of high school students at a private school in North Dallas. Of the 535 teachers tested, eleven correctly answered ten or fewer of the 60 questions (Disputes embarrass Dallas's educators, 1978).

Although there are no comprehensive data on the academic competence of new teachers, there are statistics on education students as compared to noneducation students. The College

Board's 1980 report of Scholastic Aptitude Test scores for college-bound high school seniors showed that the 6.1 per cent of students who said they planned to study education had some of the lowest scores on the test. Potential education majors had an average verbal score of 389 and an average math score of 418, compared with the national average of 424 on the verbal section and 466 on the math section for students in all fields (Watkins, 1981).

Weaver (1978, 1979) reported that the scores of education majors on the Graduate Record Examination has declined significantly since 1970 and are substantially lower than those of majors in eight other professional fields compared in 1975 and 1976. Carnegie Commission statistics compiled on undergraduate teacher trainees go beyond Weaver's findings. They suggest that not only are the best students, when the best implies "the most intellectual," not being attracted to teaching, but neither are the best when the definition of best is changed to "the least authoritarian," "the most attuned to cultural pluralism," and "the most flexible in attitudes toward minority cultures" (Study Commission on Undergraduate Education and the Education of Teachers, 1975).

Haberman (1972), in a survey of 386 member institutions of the National Council for the Accreditation of Teacher Education (NCATE), found that 344 of them rely heavily upon minimum cumulative grade point averages and accept almost anyone who applies (Twa & Greene, 1980). These studies generally support the widely held view in the academic community that teacher training programs admit almost anyone who meets minimum entrance requirements.

The Equity Issue

The other problem is one of equity, of whether existing teacher selection practices restrict the employment opportunities of minorities and/or women disproportionately compared to others. In 1970, the teacher selection process in New York City public schools was the subject of extensive hearings convened because many believed that minorities, in effect, were being systematically excluded from teaching. At the hearings, the President of the Board of Education testified that the emphasis on formalistic requirements in the selection process was one of the reasons there were so few Puerto Rican professionals in the New York schools (New York City Commission on Human Rights, 1971).

In 1974-1975, a comparison of the racial composition of the teaching staffs within the five major public schools systems indicated that the percentage of minority teachers in the Los Angeles system was 31.4 per cent; in Chicago, 43.2 per cent; in Philadelphia, 40.2 per cent; and in Detroit, 50.6 per cent. In New York City, it was 13.2 per cent for a 65.2 per cent student minority group population (Racial composition: five school districts, 1980).

Charges that hiring practices in the New York City public schools in several respects were discriminatory, in effect, if not in intent, resulted in a compliance agreement signed in 1977 with the U.S. Office of Civil Rights to change the method by which teachers were selected and assigned. In part, the

need for the agreement arose out of a state decentralization law that permitted low achieving school districts to hire their own teachers. The law, designed primarily to increase the number of minority group teachers, had the effect of creating a virtually segregated teaching staff.

U.S. District Court Judge Jack B. Weinstein upheld the agreement in 1979 and ruled that each district had to reflect, within a range of 51 per cent, the racial and ethnic composition of the system's teacher population as a whole for each level and each category. The U.S. Court of Appeals upheld Judge Weinstein's dismissal of a reverse discrimination suit challenging the plan brought by the United Federation of Teachers and others.

Supreme Court decisions, beginning with Griggs v. Duke Power Co. (1971) and Dothard v. Rawlinson (1977), have established the principle that discrimination exists where employer practices have an adverse effect on minority or female employment and are not justified by job necessity. Where there is a suspicion that this happening, a procedure may be challenged on the grounds that it violates Title VII of the Civil Rights Act of 1964 as amended by the Equal Employment Opportunity Act of 1972. Title VII regulates a wider area of conduct than do older concepts of discrimination (Blumrosen, 1979).

The Title VII standard requires a greater emphasis on recruitment, consideration of all qualified candidates, and a "closer fit" between selection procedures and the requirements of the job than does the 14th Amendment standard. Under the 14th Amendment, adverse effect or impact is not sufficient to

establish illegality. Rather, there must be some further showing of improper or invidious motive or purpose in the implementation of the program (Blumrosen, 1979).

On the measurement of adverse impact, there is additional guidance provided by the 1978 Uniform Guidelines on Employee Selection Procedures, issued by the U.S. Departments of Justice and Labor, the Equal Employment Opportunity Commission, and the Civil Service Commission in its so-called "80 per cent" or "4/5ths" rule. These federal agencies have stated that if the selection rate for minorities is within 80 per cent of the selection rate for nonminorities, normally no adverse impact will be found. This is stated as a "rule of thumb," not a "rule of law" (Blumrosen, 1979).

Job-Relatedness and the NTE

The realization of equality as well as quality is constrained by the problem of defining what actually constitutes valid job-related selection procedures and criteria. This triad of problems--quality, equality and job-related selection procedures--is well-documented in controversies over the NTE. The NTE consists of a common examination and 25 teaching area examinations, which test a candidate's general knowledge of subject matter and pedagogical principles. It provides a reasonable index of general literacy, as scores on these and other paper-and-pencil tests are significantly affected by verbal skill. However, as the Eighth Annual Mental Measurement Yearbook reports, the NTE has never been validated for

job ability. The NTE, therefore, has a questionable claim to validity in terms of predicting who will be an effective teacher (Buros, 1975).

To be considered valid, an examination or rating guide should meet several conditions. One, it must provide consistent or reliable scores. Two, it must actually measure the content it claims to measure. Three, the content must be directly tied to the use of the examination. Implicit in these conditions is the criterion that no specific group of candidates can be systematically discriminated against. The publisher and user are responsible for showing that an examination has a reasonable degree of validity (New York State Education Department, 1977).

As the NTE lacks validity in terms of predicting the actual job performance of beginning teachers, legal challenges have been raised. The U.S. Supreme Court reasoned in Washington v. Davis (1976) that although demonstrable evidence of job-relatedness based on a thorough analysis of teaching is preferable, presumptive evidence of job-relatedness is acceptable. The Court has upheld the fundamental requirement of the completion of the appropriate level of basic education, whether it is college or graduate education. The base line from which school systems can construct a selection system for teachers, it was argued, is one that starts with persons who have achieved the basic education considered necessary to function as a teacher.

The only major case to justify a general selection proce-

dure by content validity was National Education Association v. South Carolina (1978). Earlier, in Georgia Association of Education v. Nix (1976), the use of the NTE was invalidated for use in teacher selection because it was considered to have an adverse impact on minority group candidates and not to be job-related. In the South Carolina case, the Federal District Court upheld the NTE as reflecting the content of teacher education. No showing was made that the content of the examination matched the content of the jobs for which the candidates had applied. The Supreme Court affirmed without opinion. Therefore, it is not possible to be sure of the grounds on which the affirmance rests (Blumrosen, 1979).

State Certification

In the United States, teacher selection is decentralized and, consequently, complex. While it is bureaucratic, it is not monolithic. It is fragmented and confused by overlapping jurisdictions shared primarily by state governments, teacher educators and local school districts. As a result, it is difficult to establish any clear responsibility for the selection of teachers (Messerli, 1977). Although common practices may emerge in a national analysis, no single description can be entirely accurate. Each state and school district sets its own selection procedures, requirements and standards, and these vary from state to state and from district to district.

After the screening involved in obtaining entrance to and exit from a teacher education program, teacher candidates

are screened at the state level for certification. State certification is a designation that usually means an individual is a college graduate and has completed a course of study in education. Actually, it was not until the 1940's that many states required teachers to be college graduates. Prior to that, two-year training institutions, called normal schools, provided teacher training in the cases where specific preparation was required at all.

Mostly, candidates for certification are required to have a baccalaureate degree that includes 24 semester hours in professional education and a college-supervised student teaching experience. In some cases, state departments of education accept courses completed in another degree program in lieu of formal teacher preparation. In addition to college degree and course requirements, many states require the NTE or some other written, standardized test for certification.

Local Eligibility Requirements

State certification is no guarantee of employment. Teacher candidates must also satisfy an array of requirements set at the local school district level. For applicants, this often involves a review of state certification status, college transcripts, references, employment record, NTE scores, proof of citizenship and an interview. In addition, some districts require a medical examination, fingerprinting, locally constructed tests, personality inventories and an observation in a teaching situation.

In 1970, 1,100 school districts, in addition to four states, required the NTE. As a result, many prospective teachers take the NTE as a matter of course. In 1978-1979, for instance, 55,000 prospective teachers took the NTE. No passing scores are set by the NTE. The decision as to how the scores are used, whether cut-off scores are set and at what level, is left entirely to those who require the test.

In 1978, a detailed questionnaire on teacher selection policies and practices was sent to school superintendents in 62 large cities across the country with populations of 220,000 or more. Fifty-four of the 62 school systems responded. One-third of the respondents, including all of the nation's five largest cities--New York, Chicago, Los Angeles, Philadelphia and Detroit--reported that they used teacher selection examinations. Among those using examinations, the oral or interview was used most often (N=13). This was followed by the NTE (N=11), medical examinations (N=11), and training evaluations (N=9). Locally prepared essay examinations were used by 16.7 per cent of those using examinations, and locally prepared multiple-choice tests were used by 13 per cent (New York City Board of Examiners, 1978).

Two-thirds of the systems that used examinations constructed eligibility lists. Approximately 18.5 per cent indicated that the lists were rank ordered from highest to lowest test scores. Approximately 26 per cent reported that applicants were given assignment preferences on the basis of rank order. An estimated 11 per cent said they used other methods. Selec-

tion and placement in these cases were based upon such criteria as level of basic skills in teaching, certification, a combined evaluation of experience, references and college transcripts, and affirmation action goals. Among the systems reporting they did not use examinations, the interview was cited as the most frequently used selection procedure. These respondents did not consider the interview an examination (New York City Board of Examiners, 1978).

Competency-Based Teacher Education and Certification

Because of the perceived failure of existing teacher education and certification procedures, competency-based education and certification programs are being mandated by state legislatures and departments of education. These states require that in place of transcript and/or program approval, proof be submitted that teacher applicants possess a set of competencies validated in terms of student growth. Oregon, Washington, California, Minnesota, Michigan, Pennsylvania, New Jersey, Texas and Florida were in the forefront of this movement (New York City Commission on Human Rights, 1971).

Some states have gone further in mandating competency-based teacher education. For example, Oklahoma passed legislation, effective in 1982, that requires tightened admission standards, more field-based training, a fifth year for a teaching internship and examinations for future teachers in subjects they will teach. The legislature also requires deans and faculty members in education programs to demonstrate every five years that they are up-to-date in their fields (Watkins, 1981).

More and more, state legislatures are requiring teachers to demonstrate by means of licensing examinations that they know the subject matter they will teach and understand how to manage a classroom before they are certified to teach. In 1980, fourteen states required competency testing, including Arkansas, Florida, Louisiana, Mississippi, North Carolina, South Carolina, Virginia and Wisconsin, and bills for similar requirements are under consideration in many other states (Watkins, 1981; Task Force on Teacher Education and Certification, 1979).

State efforts to tighten professional standards are receiving support within the teaching profession itself. In 1979, NCATE, which accredits 550 of the 1,350 institutions with teacher training programs, denied approval to more than 30 per cent of the programs it evaluated. A few years earlier, approval had been denied to fewer than 10 per cent (Watkins, 1981). Also, the United Federation of Teachers (UFT) has undertaken a campaign to support the adoption of entry tests for new teachers. Albert Shanker has stated, "We require physicians, attorneys and others to pass tests before they are licensed. It is time we did it for teachers" (Shanker, 1980).

Competency Testing as an Issue

Many, including the National Education Association, consider state-wide testing a simplistic answer to a complex problem. They argue that the NTE and other written proficiency tests give too little attention to effective measures of performance and are based on the questionable assumption that

knowledge can be converted into appropriate behavior. Medley (1967) has concluded that any teacher effectiveness criterion that can be predicted with a selection test is probably irrelevant to teacher competence. To use a comparison Herbert Gans applied within a different context, the critics seem to be saying, we have a "meritocracy of credentialling," but not a "meritocracy of performance" (Messerli, 1977).

Critics are also troubled by the cultural bias in the tests and their exclusionary effects on minority and disadvantaged populations. In this regard, Educational Testing Service (ETS) research psychologist Thelma Spencer reported that evidence to support the allegation of cultural bias in the NTE can be observed in the significant differences in the mean scores of different racial groups and in the different response patterns to certain types of test items found in NTE scores in North and South Carolina (Kiersch, 1979).

Defenders respond that blaming bias against minorities on tests is like blaming a thermometer for a fever (Shanker, 1980). Further, they argue that special problems of corruption and favortism would result if the importance of testing were lessened. Race and ethnic identity, they predict, would become the overriding factors in selection, and reverse discrimination would replace the merit system (Career test ..., 1979). There is little evidence at the moment, however, that patronage is the rule or that teachers are demonstrably inferior in school systems where written tests are not used (Tractenberg, 1973).

In addition to protecting school systems from extraneous influences, defenders of testing believe it functions as an effective method for screening out incompetents. It is conceivable, they argue, that a teacher could have a grasp of the knowledge component of teaching and not have the ability to apply this knowledge in the classroom. However, it is impossible for them to conceive the opposite--a teacher who lacks the essential knowledge, but who still manages to teach effectively (New York State Education Department, 1977).

The complexity of the testing issue, as it relates to teacher quality and equality and job-relatedness, is well-illustrated in the circumstances surrounding Chance v. Board of Examiners (1971, 1972). In this case, supervisory tests for the New York City public schools were challenged on the grounds that they were discriminatory and were not job-related. The result was an almost ten-year injunction against written supervisory examinations. Hundreds of thousands of dollars were spent negotiating, litigating and gaining expert assistance on the development of new tests. Along the way, new procedures, developed at great cost, were dropped because they seemed too costly to implement, were potentially discriminatory and were not adequately job-related (Public Education Association, 1981).

In 1980, a new supervisory test, developed by recognized experts, was administered to junior high school principal candidates. While 46 per cent or more of the white applicants passed, no more than 17 per cent of the Hispanic and 11 per cent

of the black applicants passed. As a result, some experts believe that despite attempts to follow widely accepted validation procedures, the format, content and scoring of the test, and the fact that it is not based on an updated job definition, made it an invalid instrument. These experiences have convinced some, including the Public Education Association, that the development of a valid state-wide competency test for teachers is difficult, if not impossible, and prohibitively costly (Public Education Association, 1981).

The Cutting Edge of Reform

Other areas on the cutting edge of reform, in addition to the state competency movement, are: (1) the requirement that prospective teachers complete a teaching-internship year after graduation as a condition for certification, and (2) the intensification of efforts by local communities to recruit teachers from minority backgrounds.

In terms of the first, teachers are required to complete an internship or probationary period where competence is assessed by a master teacher, a principal and/or a state review panel. This procedure holds great promise for integrating realistic performance measures into the certification process. An important issue here is what criteria to use in evaluating interns. In New York State, the Regents have suggested that evaluation be linked to pupil performance. Commenting on this, a UFT spokesperson said it was unrealistic and unfair to view school or pupil improvement as factors in evaluating interns as it ignores the role of conditions beyond the classroom which affect

student performance (On 'teaching ..., 1980).

The debate highlights the many questions the competency-based teacher education movement has raised, which have yet to be answered and supported adequately. Among these are: Should teacher or pupil behavior be used as evidence of teacher competency? On what basis should specific behavioral indicators of competence be selected for observation? What measures have enough scope to reflect the complexity of teacher-student interaction?

The second area is reflected in the demands by some community groups to employ more minority teachers. These demands, they claim, are supported by the Lau v. Nichols (1974) decision, which ruled that Chinese students must have Chinese-speaking teachers available to them. Programs have already developed in response to these demands in East Palo Alto, the Rough Rock Demonstration School on the Navajo Reservation and in New York City. In East Palo Alto, the Ravenwood district instituted an extensive teacher training program to prepare community residents as paraprofessionals and teachers. The Rough Rock Demonstration School, run by a parent board, has committed itself to training Navajo teachers. New York City inaugurated a program for paraprofessionals drawn from local communities to work on college degrees in the City University (Gittell, 1974).

Teachers are also demanding an enlarged role in the selection process. Recommendations are surfacing which call for the creation of professional practice boards. These boards would provide a mechanism to establish rules and procedures for appeal

and reexamination similar to those in effect in the legal and medical professions. These and other recent reforms suggest that the former mutuality of interest, shared by state departments of education, teacher educators and local school districts, is breaking down and is being augmented by community groups and professional teacher organizations.

Presage, Process and Product Variables

The second part of the review essay will move from a political analysis of how the issues of teacher quality and equality for minority-group teacher applicants have influenced the development of teacher selection criteria and procedures over the last decade, to a review and analysis of what educational research has to tell us about the major components in the teacher selection process. The research focuses primarily on the relationship between three categories of variables: presage, process and product (Mitzel, 1960). Presage variables are defined as those characteristics that teachers possess before they enter the classroom. These include standardized test scores, grades, attitudes, personality, experience and race. Process factors are those that describe what actually occurs in the classroom between a teacher and student. These consist of teacher behavior, teacher-student verbal and non-verbal interactions, and various kinds of teaching strategies and situations. Both presage and process variables are often investigated in terms of product variables, such as student outcomes.

The utility of this research depends finally on the degree to which it resolves the problem of determining what teacher characteristics are correlates of improved student performance and growth. The issues of teacher quality and equality and appropriate job-related selection procedures are deeply related to the problem of defining effective teacher characteristics. Rosenshine and Furst (1971), after reviewing more than 50 articals on teacher effectiveness, stated that researchers still have to conduct more carefully controlled experimental studies and to define terms better before strong conclusions can be drawn about the correlates of teacher effectiveness. They indicated process-product studies will not improve until researchers: (1) give more attention to the prior learning of students and to the control of the effects of differences in pretest scores of students taught by different teachers; (2) examine teacher behavior over several situations instead of just one (e.g., during lectures, independent study, and over different periods throughout a single or several days); (3) collect evidence of teacher effectiveness from one year to the next; and (4) design observationsal studies of teacher behavior within short periods of time.

In a more recent review of teacher effectiveness research, McNeill and Popham (1973) concluded that more agreement is required on educational goals before the competencies of teachers can be assessed accurately. Researchers could eliminate this problem, the authors suggested, by asking teachers to select a set of objectives before their effectiveness is evaluated. Then

the relationship between presage and process variables could be studied in terms of which teachers reached their "contracted" goals and which did not. Rosenshine and Furst's and McNeill and Popham's findings highlight the very real limitations of studies of teacher characteristics commonly stressed in current selection procedures.

What follows is a review of studies that pertain to the relationships between teacher presage variables mentioned most frequently as important in the selection process, and student outcomes cited as most desirable, such as improved verbal and math achievement and grade point average (GPA). The teacher presage variables are: (1) NTE scores; (2) college grades and GPA; (3) years of experiences and certification; (4) personality traits; and (5) race. Although personality assessments were mentioned less often than other variables, they were included because recent findings suggest that they have some promise as a selection procedure.

The NTE

The common examinations of the NTE provide scores in general and professional education and a weighted combination score of the two areas (WCET), based on scores earned by college seniors who have taken the examinations since 1940. However, neither general nor professional education, nor any of their subtest scores (psychological foundations of education, teaching principles and practices, social studies, literature and fine arts, and science and mathematics) have ever been equated with each other or from form to form. Therefore, it is not known

whether any particular form or subtest is more difficult than any other.

Studies of the NTE fall into two categories: (1) those that examine pre-service preparation of teacher education students; and (2) those that examine teachers-in-service. The pre-service preparation studies deal with NTE correlates with undergraduate GPA, success in student teaching and graduate school scores, and other standardized test scores, such as the Graduate Record Examinations (GRE) (Duncan, 1971; Eissey, 1967; Elting, 1969; McCamey, 1958; Seagoe, 1949; Shea, 1955; Simpson, 1962; Thacker, 1964; Walberg, 1967). The in-service studies deal with NTE correlates with supervisor ratings of personal characteristics of teachers, such as orderliness, attitude and skill in teaching, classroom observations and pupil residual gain scores (Carson, 1969; Delaney, 1954; Eissey, 1967; Flanagan, 1941; Lewis, 1968; Lins, 1946; Medley & Hill, 1970; Ryans, 1951; Shea, 1955; Thacker, 1964).

In general, the pre-service studies reported that WCET scores and undergraduate GPA correlations ranged from .23 to .74, with a mean value of .55. This value indicates that WCET scores and student GPA correlates fairly closely. Furthermore, these findings can be generalized to a wide range of students since the WCET scores and GPA's were taken from students of universities across the United States. However, WCET scores were not found to be good predictors of actual teaching performance. For example, the correlations obtained between WCET scores and practice-teaching grades were between -.01 and .04.

On the other hand, these low correlations may be due to the lack of reliability often found with supervisor ratings of teaching effectiveness.

The in-service studies showed a rather low relationship between NTE scores and teacher effectiveness, although a few studies were encouraging. The correlations between WCET scores and ratings by supervisors and principals during the first year through the third year of teaching were about .10. The supervisor and principal ratings included evaluations of individual personality characteristics, such as personal efficiency, professional attitude, skill in teaching, cooperation and classroom management. Pupil ratings and NTE and WCET scores were also low, about .28.

In 1978, Sheehan and Marcus studied 119 teachers to examine the relationship between NTE scores and pupil achievement. Close to 2,000 first-grade pupils in a large urban school district comprised the population investigated. Of the total number of teachers, 65.5 per cent were white and 35.5 per cent were black. Most of the teachers had bachelor degrees, and some had masters'. The range of years of teacher experience was great, from 1 to 40 years. Their WCET scores ranged from 333 to 732, with a mean of 516.

Sheehan and Marcus employed a step-wise regression of analysis. The results indicated that the WCET scores were significant predictors of student class-average gains in achievement in the vocabulary and mathematics subtests of the Iowa Test of Basic Skills, when years of experience and college degree

were controlled. However, when the race of the teachers was included, WCET scores were no longer found to be significant predictors of the students' achievement gains. Race seemed to absorb the relationship initially found between the WCET scores and student achievement. In that there may have been racial differences in the NTE performance of the teachers, the authors concluded that race and WCET scores may have been confounded.

The NTE has shown significant correlations with other standardized tests. For example, correlations between WCET scores and GRE verbal scores were .77, and .54 with GRE quantitative scores. They were .51 with the GRE advanced scores in education (Johnson, 1963). These findings suggest that the NTE and tests of verbal and mathematical abilities, as well as achievement tests in education, involve similar kinds of basic aptitudes.

In a more recent study, Ayers and Qualls (1979) investigated the concurrent and predictive validity of the WCET. The results obtained from pre-service sources, which represent concurrent validity, indicated that the WCET was significantly correlated with GPA and the Teachers Area Examination (TAE) of the NTE and the American College Test (ACT). The ACT, however, seemed to be a better predictor of WCET and TAE scores than GPA. This finding was consistent with the results reported by Ayers and Rohr (1974) in their study of the relationship between several teacher variables to success in teacher training programs.

The predictive validity of the NTE, as measured by in-service teacher effectiveness criteria, showed positive correlations between principal ratings of the subject competency of secondary school teachers and the WCET. These findings were consistent with those discovered by Brown (1974), where TAE scores and principal ratings of secondary school teachers were significantly correlated. However, in the Ayers and Qualls' study no significant findings were discovered between principal ratings and the NTE scores of elementary school teachers, which is consistent with the findings reported in a review by Quirk, Witten and Weisberg (1972) of studies on the validity of the NTE.

Grades

High school and college course grades, GPA and student teaching and internship ratings are easy to obtain and quantify. As a result, they are often used as selection criteria for predicting teaching effectiveness. In general, findings on the value of grades as a predictor of teaching effectiveness are rather discouraging. Course grades and GPA have showed low correlations with principal and supervisor ratings in a range of from .07 to .22 (Eissey, 1967; Walberg, 1967). In several more recent studies on the relationship between GPA and teaching performance, as measured by supervisor ratings, pupil evaluations and student achievement gains, the correlations also were not significant (Stevens, 1979; Hensen, 1980).

Correlations obtained between practice-teaching grades and principal and supervisor ratings were considerably higher. Practice-teaching grades and supervisor ratings of personal

characteristics showed a correlation of .22; with principal ratings, they were around .17 (Walberg, 1967). In several studies that examined the relationship between college grades and student teaching, positive correlations were reported by Green (1977), Emanual, Laramore and Sagan (1975), and Williams and Fox (1967). Finally, in another study by Twa and Greene (1980), in which the authors used several criteria for predicting grades in student teaching, college GPA in a student's major was one of the most significant predictors.

Years of Experience and Certification

LuPone (1961) conducted a study to determine whether provisionally certified elementary school teachers in the first three years of teaching were as effective as permanently certified teachers. In terms of principal ratings, major differences between provisionally and permanently certified teachers emerged, favoring those permanently certified. Specifically, permanently certified teachers received better ratings in: (1) the ability to organize and plan effectively; (2) skill in translating subject matter into living experience; (3) proficiency in using materials effectively in classroom instruction; (4) understanding and sympathetic attitudes toward children; and (5) adequate utilization of remedial reading, speech, and art and music specialists, and the school nurse and psychologist in furthering their understanding of the child. Second and third-year teachers also showed greater ability and skill in emphasizing study habits.

In another study, Hall (1964) discovered that fully certified teachers in Florida were more effective in teaching language

areas, such as paragraph meaning, word meaning and spelling, than teachers who had not completed prescribed education courses for certification. Teacher effectiveness was derived through measures of pupil gains in standard achievement tests in the areas mentioned above. However, in arithmetic reasoning and computation test scores, no differences were found.

In a more recent study, Levin (1968) investigated the relationship of years of experience and verbal scores of teachers to student achievement. In addition, Levin did a cost-effectiveness analysis of the financial expense to schools of raising student achievement scores in verbal skills through the manipulation of years of experience and verbal scores of teachers on standardized tests. He found that one-point increases in teachers' verbal scores produced higher student achievement increases than one-year increases in years of teaching experience. He also found that it cost much more to raise student achievement levels by hiring more experienced teachers than it did to hire teachers with higher verbal scores.

These findings are supported by Coleman's (1966) studies on school factors responsible for student achievement. Coleman found that of the teacher characteristics investigated, verbal ability showed the strongest relationship to student achievement, followed by years of teaching experience.

Race

Morgan (1976) conducted a study to examine race as well as years of experience as contributing factors in the reading and mathematics achievement of black pupils in segregated schools.

Over 614 second, third and fourth-grade pupils and 40 teachers from six schools in a city in the northeastern United States were investigated. The results indicated that years of experience was related to a significant increase in gain scores in reading, but not in mathematics. Teachers' race had no significant impact on the students' gain scores in either mathematics or in reading.

As mentioned earlier, the issue of equity in the hiring of minority-group teachers has received serious attention by government and school officials. It would seem, therefore, that race would draw the attention of educational researchers. However, this has not been the case to any significant degree. Among the few studies on the effects of race and teacher effectiveness are Morgan (1976) and Sheehan and Marcus (1978), both discussed earlier, Summers and Wolfe (1975) and Outtz (1976).

Summers and Wolfe (1975) found that whether or not a teacher was black or nonblack seemed unrelated to pupil achievement growth, while years of experience was related. On the other hand, Sheehan and Marcus (1978) found that race was related to student achievement gains in word and number usage when years of experience was controlled. There is a possibility that the researchers confounded race and WCET scores, however, which would prevent any valid conclusions from being drawn regarding the "real" effects of racial factors on student achievement.

In another study, Outtz (1976) examined the role of racial bias in evaluations of black teacher performance by black and

white raters. Race was manipulated through the use of photographs of hypothetical white and black college instructors. Attached were written evaluations of their teaching performance, judged as either "good," "average" or "poor." In general, it was found that if an instructor's initial performance was rated as either average or poor, racial factors were important. For example, when teaching performance was described as poor, white raters favored white over black instructors in terms of the quality of their teaching performance. When teaching performance was described as average, white raters favored black over white instructors in terms of whether they should be promoted or not. Black raters also favored average black instructors in terms of promotability.

Finally, Medley and Quirk (1974) examined the relationship between the cultural content of sets of items of the NTE and the performance on those items by blacks and whites. The study grew out of a major concern that racial bias might be operating in the test, which could reduce its validity and discriminate unfairly against black candidates for teaching positions.

Two experimental forms of the NTE were developed for the purposes of this study. In each form, 60 items were constructed with an equal number of items representing "black culture," "modern culture" and "traditional culture." These items were included in place of the 65 "general" cultural items normally contained in the test, which presumably reflected traditional American content.

The results showed that the performance of black candidates compared to white candidates on general culture items depended

on whether the items referred to concerns and experiences of black Americans. The average black candidate compared to the average white in this study would score 4.4 points higher on a test of 65 black cultural items and 13.4 points lower on a test of 65 traditional items. A changeover from 65 traditional to 65 black items would increase the scores of blacks relative to whites by 17.8 points, or over 27 per cent. Secondly, on a test made up of 65 modern items, blacks would score approximately 5 points lower than whites. These findings were consistent whether candidates were male or female or were tested in the North or the South, or in an urban or rural part of the country.

Personality Traits

Research on the impact of personality on teacher effectiveness is discouraging. In part, this may be due to the low correlations often found between measures of personality and overt behavior (Mischel, 1968), or to the lack of clarity of the notion of teacher effectiveness.

Methods used to assess personality include: personality questionnaires and inventories; projective tests, such as the Rorschach Inkblot Test and the Thematic Apperception Test (TAT); observational ratings of teacher classroom behavior; and unstructured interviews. The interview technique is of particular importance in any discussion of teacher selection because of its widespread use by school administrators in the hiring of new teachers (New York City Board of Examiners, 1966; 1978). As an instrument for assessing the potential effectiveness of teacher candidates, however, it has been found to be rather biased.

Merritt (1971) found results suggesting that selection officers often place heavy emphasis on whether or not the attitudes of teacher applicants are congruent with their own in determining whether to accept or reject candidates. Credentials, such as NTE scores, GPA and recommendations, receive little weight in these decisions. Several other studies have documented that interviewees frequently mislead interviewers into making false judgments about their character and their actual credentials (Maier, 1966; Maier & Thurber, 1968).

Even though, overall, the findings regarding the impact of personality on teacher competence are discouraging, there have been some significant results that warrant consideration. For example, Flanagan (1961) compared Minnesota Multiphasic Personality Inventory (MMPI) scores of 147 female teachers with supervisory ratings of teacher effectiveness and found that those coded high in hysteria were correlated to teacher competence. Bowers and Soar (1962) also reached the same conclusion. In their study, teacher effectiveness was evaluated through the revised Observation Schedule and Record (OSCAR) of Medley and Mitzel (1963) and the Russell Sage Social Relations Test, a measure of skill in cooperative planning and work. Bowers and Soar, however, also found that psychopathic deviate codings--schizophrenia and psychoathenia--were negatively correlated with teacher effectiveness. In general, these findings suggest that the more serious the diagnostic evaluation, the less likely a teacher will be able to form constructive relationships with students.

Burkhard (1962) also examined various teacher personality traits obtained by the TAT and found that teachers who ranked high in the ability to explain and recognize their own limitations and strengths, were liked more by their students than teachers ranked low in these personality traits. In another study designed to determine whether certain personality traits were associated with student ratings of teacher effectiveness, Goodwin (1979) found that teachers rated "reserved" and "tough-minded" were better motivators and more subject oriented than "tender-minded" teachers. Students also perceived the more intelligent teachers to be fairer than less intelligent teachers. Estimates of intelligence and fairness, however, were both determined by the students, which limits any conclusions regarding whether intelligence and fairness are related.

In a more recent study, Saracho and Dayton (1980) investigated the relationship of teachers' cognitive style and pupil academic achievement residual gain scores. The Embedded Figures Test (EFT), which yields measures of field dependent and independent cognitive styles, was administered to 36 teachers and 432 second and third-grade pupils. Teachers and children with similar cognitive styles were considered mismatched. Also, comprehensive tests of basic skills were administered twice during a one-year period to determine how much the children gained in achievement that year.

The results indicated that children with field independent teachers showed greater gain scores in achievement than children with field dependent teachers. There were no significant findings on student gain scores based on matched or mismatched cognitive

styles or within grade levels. These findings suggest that the less influenced a teacher is by social standards or public opinion and the more articulate and conceptual the cognitive style, the more likely higher gains in student achievement will be induced.

Ayers and Qualls (1979) found significant correlations between the NTE and the California F-Scale, which measures the degree to which a person is flexible and open-minded. The authors found that candidates who scored high on the WCET and TAE were more open-minded and less authoritarian than candidates who scored low on these tests. Although these correlations do not test directly the use of the F-Scale as a predictor of teacher competence, it does offer indirect evidence that student-teachers who do well in training are more open-minded than those who do poorly.

Ayers and Qualls also found that the WCET was correlated with friendliness and cheerfulness as derived from student evaluations. No significant correlations, however, were discovered on personality dimensions of creativity, dynamism, organized demeanor or warmth and acceptance.

Fox and Peck (1978) investigated the relationship between several personality traits, teacher behavior and indices of teacher effectiveness. In general, the authors found that high scores on efficiency based on teacher self-reports were related to pupil self-esteem. Teachers who described themselves as introverted were the best predictors of pupil achievement gains and positive self-evaluations. The authors also mentioned that the results seemed to suggest that teachers who

rated themselves as charming, witty and sophisticated (extroverted measure) had negative effects on pupil achievement and self-reports of their ability to cope with life's problems.

Conclusion

The research findings on presage variables and teacher effectiveness fluctuated on the basis of the type of presage variable studied and the product variables used as measures of teacher competence. Most of the studies reviewed employed pupil residual gains in achievement and principal and other administrator ratings as measures of teacher effectiveness. These product variables often showed low concurrent validity with each other and low correlations with the presage variables studied.

Verbal ability showed the strongest correlations with measures of teacher competency based on principal and other supervisory ratings and pupil residual achievement gain scores. NTE scores showed only moderate, but significant correlations with these product variables. Years of experience and certification, although lower than verbal ability, showed rather positive associations with teacher effectiveness as measured by principal ratings and pupil verbal achievement score gains. Math achievement gains did not show a positive correlation with years of experience and certification.

Course grades showed discouraging correlations with measures of teacher effectiveness. The correlations obtained were between .07 and .22. Practice teaching, at .17, showed up on the higher end of the scale. This might have been due to the similarities of the situations in which the ratings were derived.

Race registered one of the poorest correlations with teacher effectiveness. However, the value of this finding is greatly limited by the paucity of studies on race and the methodological problems in the studies. For example, it was reported in some studies that supervisor ratings of teacher competence were influenced by racial factors. Also, it was claimed that standardized tests of achievement, such as the NTE, are culturally biased against minority candidates.

A number of personality traits have shown a potential for a relationship to teacher effectiveness. These include field dependent cognitive style, open-mindedness, level of warmth and sincerity, and introversion. However, the correlations found tended to be rather low and to vary from study to study.

In conclusion, the importance of the presage variables reviewed in relationship to their value as indicators of teacher competence can be listed from highest to lowest in the following order: (1) verbal ability; (2) years of experience and certification; (3) NTE scores; (4) grades; and (5) race. As for personality, the data now available is not adequate to rank it with the other variables.

It must be noted, however, that two of the procedures frequently used to measure teacher competence--interviews and principal ratings--often are biased. As a result, serious questions can be raised about the conclusions drawn regarding the value of each of the presage variables reviewed. Research findings suggest that interviews often yield unreliable information about teacher credentials and personality traits.

Ratings of teacher competence, obtained through principals and other supervisory staff, often fall within the upper ranges of possible scores. This is attributed to administrative efforts to project a favorable impression of teacher effectiveness. Therefore, it is possible that the low correlations may be due to the low discriminability of the product variables analyzed.

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